

# CS3425 Lab – ER design

## Important notes:

1. Please use the notation that we covered in class. You will get 0 if you use other notations.
2. See the Modules->Questions?->FAQ on canvas about how to draw ISA notation
3. Remember to save your file after performing some operations in case Dia terminates unexpectedly.

1. Download and install dia on your own computer from here:  
<http://dia-installer.de/download/index.html>

If you are use Mac and have trouble to start Dia from the launchpad, try to change the setting:

From Applications: Dia->Show Package Contents -> Contents -> Resources -> bin -> and edit the 'dia' file to include the line " `export DISPLAY=:0` " outside the "if" statement. See the redline below.

```
cd /Applications/Dia.app/Contents/Resources/bin
```

```
vi dia
```

```
15 # Brutally add many things to the PATH. If the directories do not exist, they won't be used anyway.
16 # People should really use ~/.macosx/environment.plist to set environment variables as explained by Apple:
17 #   http://developer.apple.com/qa/qa2001/qa1067.html
18 # but since no one does, we correct this by making the 'classic' PATH additions here:
19 #   /usr/local/bin which, though standard, doesn't seem to be in the PATH
20 #   newer python as recommended by MacPython http://www.python.org/download/mac/
21 #   Fink
22 #   MacPorts (former DarwinPorts)
23 #   LaTeX distribution for Mac OS X
24 #export PATH="/usr/texbin:/opt/local/bin:/sw/bin:/Library/Frameworks/Python.framework/Versions/Current/bin:/usr/local/bin:$PWD:$PATH"
25
26 # Check for X11
27 if [[ "$*" == "$DISPLAY" ]]; then
28     export DISPLAY=:0
29 fi
30 export DISPLAY=:0
31 startx="which startx"
```

Dia documentation: <http://dia-installer.de/doc/en/index.html>

Connecting objects with Lines: <http://dia-installer.de/doc/en/objects-chapter.html#connecting-objects>

2. Draw the following ER diagram using Dia

This exercise is designed to help you to get familiar with Dia and ER notations.

#	Description	Name	Type	Attribute	PK
1	All employees	<b>employee</b>	Strong entity set	emp_no, name, salary	emp_no
2	All pilots	<b>pilot</b>	Subclass of employee		
3	All airplane models	<b>plane</b>	Strong entity set	maker, model_no, capacity, seatmap	maker, model_no
4	All flight routers between cities	<b>flight</b>	Strong entity set	flight_no, origin, dest, dept_time, arr_time	flight_no,
5	All passenger	<b>passenger</b>	Strong entity set	id_type, id_no, name, address, phone	id_type, id_no
6	All instances of flights	<b>departure</b>	Weak entity set	actual_dept_date_time, actual_arr_date_time	actual_dept_date_time
7	All airplanes  All airplanes have a unique serial no for that model	<b>aircraft</b>	Weak entity set	serial_no	serial_no
8	Connect the aircraft with its model information	<b>type_of</b>	Identifying relationship  Many to exactly one from aircraft to plane		
9	Connect an instance of a flight with the flight schedule	<b>instance_of</b>	Identifying relationship Many to exactly one from departure to flight.		
10	Customer booked a seat on instance of a flight	<b>booked</b>	Relationship Many to many between passenger and departure	seatno	
11	Employees are assigned to work on instances of fights	<b>works_for</b>	Relationship Many to many between employee and departure.	role	
12	aircraft is assigned to an instance of flight	<b>assigned_plane</b>	Relationship one to many from aircraft to departure.		
13	The model of plane that pilots can fly	<b>can_fly</b>	Relationship Many to many between pilot and plane.		

3. Export the ER diagram as PDF from Dia and submit to Gradescope

- a. Go to file -> page setup
  - i. Select paper size to be letter
  - ii. Under Scaling, Select Fit to 1 by 1
- b. Go to file -> export
  - i. Choose pdf file type
  - ii. Save to a file